

5    **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (previously presented): A network topology backplane bus architecture comprising:

      a plurality of independent data communication lines;

10        a plurality of processing nodes sharing said independent data communication lines for data communication;

              one of said processing nodes being normally connected for both transmitting and receiving on a first subset of said data communication lines and being normally connected for only receiving on a second subset of said data communication lines; and

15        another of said processing nodes being normally connected for both transmitting and receiving on said second subset of said data lines and being normally connected for only receiving on said first subset of said data lines.

Claim 2 (original): The network topology backplane bus architecture recited in claim 1, wherein ones of said independent data communication lines comprise a first independent data

20        communication network and different ones of said independent data communication lines comprise a second independent data communication network

Claim 3 (original): The network topology backplane bus architecture recited in claim 2, wherein ones of said first subset of said data communication lines in combination with ones of said second subset of said data communication lines comprise one of said first and second independent data

25        communication networks; and

              different ones of said first subset of said data communication lines in combination with different ones of said second subset of said data communication lines comprise a different one of said first and second independent data communication networks

Claim 4 (original): The network topology backplane bus architecture recited in claim 1, wherein

30        said one of said processing nodes transmitting and receiving on a first subset of said data

5 communication lines utilizes said first subset of said data communication lines for local communication within said processing node.

Claim 5 (original): The network topology backplane bus architecture recited in claim 4, wherein said one of said processing nodes transmitting and receiving on a first subset of said data communication lines further utilizes said first subset of said data communication lines for 10 broadcasting transmissions to another of said processing nodes.

Claim 6 (original): The network topology backplane bus architecture recited in claim 4, wherein said one of said processing nodes transmitting and receiving on a first subset of said data communication lines further utilizes said first subset of said data communication lines for receiving data transmissions from another of said processing nodes.

15 Claim 7 (original): The network topology backplane bus architecture recited in claim 4, wherein said one of said processing nodes transmitting and receiving on a first subset of said data communication lines is one of a plurality of said processing nodes transmitting and receiving on said first subset of said data communication lines.

20 Claim 8 (original): The network topology backplane bus architecture recited in claim 7, wherein each of plurality of processing nodes transmitting and receiving on said first subset of said data communication lines are co-located in a first resource enclosure.

Claim 9 (original): The network topology backplane bus architecture recited in claim 7, wherein each of plurality of processing nodes transmitting and receiving on said first subset of said data communication lines time-shares said data communication lines with others of said plurality of 25 processing nodes transmitting and receiving on said first subset of said data communication lines.

Claim 10 (original): The network topology backplane bus architecture recited in claim 9, wherein each of plurality of processing nodes transmitting and receiving on said first subset of said data communication lines time-shares said data communication lines in synchronization with others of said plurality of processing nodes transmitting and receiving on said first subset of said data 30 communication lines.

5 Claim 11 (original): The network topology backplane bus architecture recited in claim 5, wherein said processing node transmitting and receiving on said second subset of said data lines and receiving on said first subset of said data lines utilizes said second subset of said data communication lines for local communication within said processing node.

10 Claim 12 (original): The network topology backplane bus architecture recited in claim 11, wherein said processing node transmitting and receiving on said second subset of said data communication lines further utilizes said second subset of said data communication lines for broadcasting transmissions to another of said processing nodes.

Claim 13 (original): The network topology backplane bus architecture recited in claim 12, wherein ones of said processing nodes supports different ones of flight critical functions.

15 Claim 14 (original): The network topology backplane bus architecture recited in claim 13, wherein one or more of said processing nodes supporting one of said flight critical functions is duplicated in one or more additional ones of said processing nodes.

20 Claim 15 (original): The network topology backplane bus architecture recited in claim 14, wherein one of said processing nodes supporting said one of said flight critical functions is located in a first resource enclosure; and

at least one of said additional processing nodes supporting said one of said flight critical functions is located in a physically isolated second resource enclosure.

25 Claim 16 (previously presented): A network topology backplane bus architecture comprising:  
a plurality of processing nodes transmitting and receiving data communications;  
a plurality of independent data communication networks formed of a plurality of independent data communication lines, a subset of said data communication networks extending between ones of said plurality of processing nodes;

30 a first subset of ones of said data communication lines allocated to a first of said processing nodes for transmitting and receiving data communications, said first subset of said data communication lines further allocated to a second of said processing nodes for monitoring data communications transmitted on said first subset of said data communication lines and receiving

5 data communications as a function of said monitoring of said data communications transmitted on said first subset of said data communication lines;

a second subset of ones of said data communication lines allocated to said second processing nodes for transmitting and receiving data communications, said second subset of said data communication lines further allocated to said first processing nodes for monitoring data

10 communications transmitted on said second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said second subset of said data communication lines.

Claim 17 (original): The network topology backplane bus architecture recited in claim 16, wherein each of said plurality of processing nodes supports one or more processing functions.

15 Claim 18 (original): The network topology backplane bus architecture recited in claim 17, wherein said first subset of said data communication lines comprises ones of said plurality of independent data communication lines forming each two or more of said plurality of independent data communication networks; and

20 said second subset of said data communication lines comprises different ones of said plurality of independent data communication lines forming each two or more of said plurality of independent data communication networks.

Claim 19 (original): The network topology backplane bus architecture recited in claim 17, wherein said subset of said data communication networks extending between ones of said plurality of processing nodes comprises:

25 said first subset of ones of said data communication lines allocated to said first processing node for transmitting and receiving data communications; and

26 said second subset of ones of said data communication lines allocated to said second processing node for transmitting and receiving data communications.

Claim 20 (original): The network topology backplane bus architecture recited in claim 19, wherein  
30 said first processing node is one of a plurality of first processing nodes each transmitting and receiving on said first subset of data communication lines; and

5        said second processing node is one of a plurality of second processing nodes each transmitting and receiving on said second subset of data communication lines.

Claim 21 (original): The network topology backplane bus architecture recited in claim 20, wherein each of said plurality of first processing nodes are co-located in a first resource enclosure.

10      Claim 22 (original): The network topology backplane bus architecture recited in claim 20, wherein each of said plurality of first processing nodes time-shares said data communication lines with others of said plurality of first processing nodes.

Claim 23 (original): The network topology backplane bus architecture recited in claim 20, wherein one or more of said processing nodes supporting one of said processing functions is duplicated in one or more additional ones of said processing nodes.

15      Claim 24 (original): The network topology backplane bus architecture recited in claim 23, wherein a first one of said processing nodes supporting said one of said processing functions is located in a first resource enclosure; and

20      at least one of said additional processing nodes supporting said one of said processing functions is physically isolated from said first one of said processing nodes in a second resource enclosure.

Claim 25 (original): The network topology backplane bus architecture recited in claim 17, wherein said first subset of data communication lines allocated to a first of said processing nodes for transmitting and receiving data communications and said second subset of data communication lines allocated to said second processing node for transmitting and receiving data communications 25 comprises a first of said data communication networks, said first data communication networks extending between ones of said plurality of processing nodes;

additional different ones of said plurality of independent data communication lines comprise a second of said data communication networks allocated to said first processing nodes for transmitting and receiving data communications among said first processing nodes; and

5 additional different ones of said plurality of independent data communication lines comprise a second of said data communication networks allocated to said second processing nodes for transmitting and receiving data communications among said second processing nodes.

Claim 26 (original): The network topology backplane bus architecture recited in claim 25, wherein said first processing nodes comprise a single processing node supporting a first processing

10 function; and

said second processing nodes comprise a single processing node supporting a second processing function.

Claim 27 (original): The network topology backplane bus architecture recited in claim 26, wherein said first and second processing nodes are co-located in a single resource enclosure.

15 Claim 28 (original): The network topology backplane bus architecture recited in claim 26, wherein said first and second processing nodes are located in respective first and second physically isolated resource enclosures.

Claim 29 (original): The network topology backplane bus architecture recited in claim 26, wherein said first processing function and said second processing functions are essentially identical

20 processing functions.

Claim 30 (previously presented): A method of sharing independent data communication lines for fault tolerant data communication among a plurality of processing nodes, the method comprising dividing a plurality of data communication lines into mutually exclusive first and second subsets of data communication lines;

25 permitting first processing nodes both transmitting and receiving privileges on said first subset of data communication lines and limiting second processing nodes to only receiving privileges on said first subset of data communication lines;

permitting to the second processing nodes both transmitting and receiving privileges on said second subset of data communication lines and limiting the first processing nodes to only

30 receiving privileges on said second subset of data communication lines.

5      Claim 31 (original): The method recited in claim 30, further comprising extending said first and second subsets of data communication lines between the first and second processing nodes.

Claim 32 (original): The method recited in claim 31, further comprising isolating ones of said first subset of data communication lines and ones of said second subset of data communication lines from other different ones of said first and second subsets of data communication lines.

10     Claim 33 (original): The method recited in claim 30, wherein said first and second subsets of data communication lines comprise a single subset of inter-nodal data communication lines; and further comprising:

permitting both the first and second processing nodes to both transmit and receive on said inter-nodal data communication lines;

15     permitting the first processing nodes to both transmit and receive on a first additional subset of data communication lines; and

permitting the second processing nodes to both transmit and receive on a second additional subset of data communication lines.

Claim 34 (previously presented): A method of sharing independent data communication lines for  
20     fault tolerant data communication among a plurality of processing nodes, the method comprising:

permitting first processing nodes to both transmit and receive on a first subset of data communication lines and limiting the first processing nodes to only monitor transmissions on a second subset of data communication lines and to receive transmissions as a function of detecting transmissions on said second subset of data communication lines;

25     permitting second processing nodes to both transmit and receive on said second subset of data communication lines and limiting the second processing nodes to only monitor transmissions on said first subset of data communication lines and to receive transmissions as a function of detecting transmissions on said first subset of data communication lines.